

Investing in Aircraft Technology: Focus or Balance

WITHOUT question, the immediate years ahead will see intensified competition for declining resources to develop new aircraft technology. Post cold war draw-down economics will constrain military aircraft technology growth to a low-rate, push-button production paradigm. Sluggish economics at home and a highly dynamic world aviation leadership struggle lend uncertainty and risk to long-range investment planning for commercial aircraft technology. Yet aircraft technology is years away from maturity. And, certainly, the manifest utility of aircraft for such things as response to threats (both military and environmental), shaping events, bridging cultures, deterring wars, and just bringing us closer together has barely emerged. So we need to address how we're going to shape our investment in aircraft technology under these new ground rules as the world moves into a new era of aviation platforms and applications and current-generation fleets continue to age. Old practices of broad-based investment, covering all conceivable options, and numerous new and upgrade prototypes will not be sustainable. At stake is the viability of the industrial base along with university and government R&D capacity.

A key issue is whether to balance our constrained investment among numerous options to avoid missing opportunities or focus critical mass against projected successes. A key current example of the benefits of focused investment is the National Aerospace Plane (NASP) program. For example, this program has undoubtedly accelerated the development of computational fluid dynamics by at least 10 years beyond where it was in 1987. Tip-to-tail calculations of complex configurations are now routine application. This balance vs focus issue does not appear to align itself, in my view, with classical competitive sectors of society such as liberal vs conservative, optimist vs pessimist, or civilian vs military. The issue is extremely complex and one that should be debated in economic planning terms in the pages of this journal. I don't have the answers but can assure you that both sides have their champions.

What are some of the elements of this issue? One is the strong advocacy, seen in Congress so far, in re-investment of defense capacity, including greatly increased civilian-military cooperation, in addressing domestic problems. Considerable Department of Defense technology will transition to the commercial sector and, hopefully, to building the infrastructure of this country, and a process to identify and exploit "dual-use" technology will emerge. Balanced vs focused investment then becomes a joint issue between the services and the private sector. Good papers from the affected communities analyzing the issues and providing some recommendations based on sound technical analysis are most welcome.

Another significant element is the global economy consideration. Can some form of alliance (reliance) be carved out that encourages selective, cooperative investment? We stand on the threshold of a near-term capacity for instantaneous global communication coupled with massive computational capability. The pace of information technology development, overall,

will become staggering. Aircraft technology development is currently an order of magnitude slower than that of information technology but might be sped up with proper focus. Application of virtual environment technology may soon allow international real-time design and assimilation of new technology offerings. This journal has, for several years, been blessed with a fine International Board of Editors (see front inside cover). They are available to help authors develop papers. Contact them as appropriate to begin addressing these issues of aircraft technology development in a rapidly changing world.

I felt the need to raise this issue of balanced vs focused aircraft technology development investment because of what I sense is a lack of clear current direction or policy. Perhaps you agree and would be willing to discuss it further through good papers in this journal. Let me know your thoughts on this subject.

Now let me turn to the enjoyable task of recognizing some important people who make this journal possible. In the AIAA Staff I'll begin with Norma Brennan, Director, Journals. She continues a long tradition of dedication and creative leadership for all of our journals and has managed to weather a long siege of rapid staff turnover. I look to her for support and counsel and she's always able to get me through each crisis. Directly under Norma is Heather Brennan (no relation), who is our Managing Editor. She keeps the production process on a steady course and has established a good working relationship with our excellent contract support, Easton Publishing Services, Inc. Production Editors this past year have been Tom Nissley and Christine (Chris) Williams. Both have worked with me and our contractor to assure high-quality journals, and my sincere thanks to both. I would like to especially thank Editorial Assistants Amy Agnew and Everett Johnson; Art Director Sara Bluestone; Graphic Designers Reginald Clay and Jacquelin Razavi; and Compositors Paul Freedman and Eric Selner.

My Associate Editor Staff is depicted in these pages. They are dedicated to the objectivity and quality of each article. Note that we have a new AE from Canada, our first such non-U.S. editor. The main impediment in the past has been the slow mails and the language barrier. Perhaps this will change in a global economy, and we can look forward to having Associate Editors from other countries.

The list of reviewers, representing a one-year time span beginning with October 1991, is also in these pages. We obviously can't publish a journal without the dedicated help of excellent reviewers. Trivial reviews are almost nonexistent.

I have selected an Editorial Advisory Board this year from several of our Technical Committees. They help with global issues but, in particular, bridge the gap between their particular TC and the journal. I look forward to working with this group this year.

Thomas M. Weeks
Editor-in-Chief